Executive Summary

The 2000–2001 Progress Report highlights one year of progress in Critical Skills Development and Science Education at Los Alamos National Laboratory (LANL). With a focus on the Laboratory mission—to serve the nation by applying the best science and technology to make the world a better and safer place—we made significant and unique contributions toward building the future technical workforce.

During the year, over 1,800 students participated in research and learning activities in the fields of science, engineering, technology and mathematics. The Office of University Partnerships of the National Nuclear Security Agency (NNSA), Department of Energy (DOE), primarily fund the student experiences. Additional funding is provided from other DOE offices, the National Science Foundation (NSF), the New Mexico Department of Education, the Commission on Higher Education, National Aeronautics and Space Administration (NASA), and others.

The Critical Skills Development and Science Education Program applies the scientific and technical resources of the Laboratory to critical needs in workforce development and education. Our goals are to

- Identify, develop, and inspire future scientific leaders
- Ensure a highly trained, diverse workforce
- Facilitate systemic change in mathematics and science education
- Serve as a national model to improve the quality of science, mathematics, engineering, and technology education

Section 1 of this report covers Critical Skills Development projects supported jointly by DOE and LANL management. New projects for 2000–2001 cover materials technology and high explosives engineering. Ongoing projects include physics and engineering summer schools, *f*-element and radiochemistry courses, mathematics and robotics competitions, the supercomputing challenge and career development in computer science. Each of these projects are driven by critical skill needs, designed with well-defined objectives, and structured so that students have an extended educational experience at the Laboratory.

Section 2 provides a description of the high school co-op, undergraduate, and graduate student programs.

Section 3 summarizes targeted student internship programs. The Morehouse College and College Co-op programs were new for 2000-2001. The Hertz Scholars Program was greatly expanded this year. The feature program in northern New Mexico was the Math and Science Academy. This was the final year for the Teacher Opportunities to Promote Science (TOPS) program. Continuing internship programs included the Fuel Cell Documentary, National Consortium for Graduate Degrees for Minorities in Engineering and Science, Massachusetts Institute of Technology (MIT) Engineering Internship Program, National Physical Science Consortium, Oak Ridge Institute of Science and Education, and South Carolina Universities Research and Education Foundation.

The Critical Skills Development and Science Education Program at Los Alamos is highly valuable to the Laboratory and to the Department of Energy. We are very proud of our accomplishments recorded here and look forward to future work with enthusiasm.